REMARKS

Entry of the foregoing, reexamination and further and favorable reconsideration of the subject application in light of the following remarks, pursuant to and consistent with 37 C.F.R. § 1.116, are respectfully requested.

By the foregoing amendment, claim 3 has been amended to re-insert original claim language which was inadvertently omitted in reproducing such claim back in the Amendment and Reply of May 27, 2003. In particular, the phrase ", wherein said IgY antibodies are capable of specifically binding to the adhesion portion of *Helicobacter pylori* urease" has bee re-inserted before "in the gatrointestinal tract." It is obvious from the record, and acknowledged by the Examiner, that this was an inadvertent omission as such language was not indicated as being affirmatively deleted by use of brackets or strike through text. Support for this language is found in claim 3 as originally filed, not to mention throughout the specification. Thus, no new matter has been added.

Turning now to the Official Action, the Examiner has rejected claims 3-4 and 8 under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. In particular, the Examiner has stated that the claim is confusing as reproduced due to an "inadvertent clerical error." As discussed above, the inadvertently omitted claim

language has been re-inserted by the foregoing amendment.[1] Accordingly, withdrawal of this rejection is respectfully requested.

Further, claims 1-4 and 7-8 have been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Kodama (U.S. Patent No. 6,419,926) in view of Kodama (EP 1010434). This rejection is respectfully traversed.

In establishing a *prima facie* case of obviousness under 35 U.S.C. § 103, it is incumbent upon the examiner to provide a reason why one of ordinary skill in the art would have been led to modify a prior art reference or to combine reference teachings to arrive at the claimed invention. Here, the combination of references — US '926 in view of EP '434 — fails to teach or suggest the synergistic effects achieved by the present invention. Moreover, one of ordinary skill in the art could not have predicted with a reasonable expectation of success the synergistic effects of the claimed invention in view the teachings of US '926 and EP '434.

Although both the mucin disclosed in EP '434 and the chicken egg-derived IgY antibodies used in the present invention exhibit the same action of elimination of *Helicobacter pylori* (Hp), they are totally different from each other not only with respect to composition of matter or type of substance but also with respect to the mechanisms of their action as discussed below.

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[1] Applicants do not believe that the foregoing amendment should be considered a "limiting amendment" since such amendment simply places this element of the claim in the form it was presented as originally filed.

The inhibitory action of the mucin used in EP '434 is effected by binding polysaccharide moieties (*i.e.*, sugar chains) of the mucin to the Hp urease (*i.e.*, peptide moieties of Hp) in an acidic pH range. More specifically, the mucin is a glycoprotein and the polysaccharide moieties of the mucin having a specific structure (which is sulfated polysaccarides) can bind to an adhesion portion of the Hp urease for gastric mucosal mucin in the range of pH 2-4 (as shown in Figure 1 of EP '434), thereby inhibiting the binding of Hp to the gastric mucosal mucin. Thus, the mechanism of the inhibitory action of the mucin is an adsorption or interaction of its polysaccharide moieties with the peptide moieties of Hp. The inhibitory action of the mucin results from blocking the adhesion portion of Hp by the polysaccharide moieties of the mucin in the above-mentioned pH range.

In contrast, the IgY antibodies against the Hp urease used in the present invention are composed of a protein or polypeptide. The inhibitory action of the antibodies, which are capable of specifically binding to the Hp urease, is effected by an immune reaction between antigen-binding steps of the antibodies and the Hp urease. More specifically, the antibodies can bind to epitopes on the Hp urease by means of their antige-binding sites (i.e., variable regions in the antibodies) which are composed of polypeptide moieties. Furthermore, the antibodies of the invention are polyclonal and can bind to many epitopes on the Hp urease including the adhesion portion there. These polyclonal antibodies may form immunoagglutinates. Therefore, the mechanism of the action of the antibodies is an immunological binding between peptide and peptide moieties (*i.e.*, peptide-peptide

binding). The inhibitory action of the antibodies is due to the immunoagglutination, thereby inhibiting the function of the Hp urease as an adhesion molecule.

As discussed above, the mucin used in EP '434 and the chicken egg-derived antibodies used in the present invention are different from each other, both in type of substance and in the mechanism of action. In such circumstances, one of ordinary skill in the art would not consider that the same synergistic effects as disclosed in EP '434 to be reasonably expected in the present invention.

In addition, the effects achieved by the present invention are unexpectedly superior to those disclosed or suggested in EP '434. In EP '434 it is disclosed or suggested that the dose of a mucin can be decreased to a level on the order of ½ to ¼ by combining it with a gastric acid secretion inhibitor. In contrast, according to the present invention, the dose of the chicken egg-derived IgY antibodies can be decreased to a level of 1/100, which is surprisingly superior to the results of EP '434, by combining it with a gastric acid secretion inhibitor such as a H_2 blocker or proton pump inhibitor. Thus, the synergistic effects of the claimed invention could not be reasonably expected from EP '434.

The Examiner has indicated that it is readily apparent to any skilled artisan to use superior or improved newer generation drugs such as H_2 blockers and proton pump inhibitors in place of old generation drugs such as antacids and digestive enzymes. See page 4 of the Official Action. Applicants respectfully disagree.

Antacids which were categorized by the Examiner as old generation drugs simply act to neutralize the gastric acid which has been secreted from the gastric mucosa. On the

other hand, the new generation drugs such as H_2 blockers and proton pump inhibitors inhibit or suppress the secretion itself or gastric acid from the gastric mucosa. Thus, the mechanism of action and hence the therapeutic use or application are different between these old and new generation drugs. Even at the present time, physicians properly choose between the old or new generation drugs for prescription depending on the conditions and severity of the disease of a patient. Thus, those skilled in the art know that these types of drugs are not interchangeable but are used properly for different purposes.

Accordingly, the Examiner's assertion that it is readily apparent to use superior or improved newer generation drugs, such as H_2 blockers and proton pump inhibitors, in place of old generation drugs, such as antacids and digestive enzymes, is contrary to the above-described technical knowledge well known in the field of pharmaceuticals and medial science.

As discussed above the synergistic effects achieved by the present invention are not disclosed or suggested by either US '926 or EP '434. Further, one of ordinary skill in the art could not have reasonably predicted from these references that the synergistic effects of the present invention could be achieved. Moreover, for the reasons discussed above, the skilled artisan would not have considered antacids and digestive enzymes interchangeable for H_2 blockers and proton pump inhibitors.

In view of the above, a proper prima facie case of obviousness has not been established. As such, withdrawal of this rejection is respectfully requested.

From the foregoing, further and favorable action in the form of a Notice of Allowance is respectfully requested and such action is earnestly solicited.

In the event that there are any questions relating to this Amendment and Reply, or the application in general, it would be appreciated if the Examiner would telephone the undersigned attorney concerning such questions so that prosecution of this application may be expedited.

Respectfully submitted,

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